

ROCKS AND MINERALS

By: Paul and Matt

What is a Mineral?

A Mineral:

- Is a Solid
- Is Naturally Occurring
- Is Inorganic (not made from plants or animals)
- Has a Fixed Chemical Formula (it's ingredients do not change)
- Has an Orderly Crystalline Structure

What is a Rock?

A Rock:

- Is a Solid
- Is Naturally Occurring
- Is Made up of Minerals

WHAT ARE THE ROCK TYPES?

- **Igneous Rocks**
 - **Granite**
 - **Basalt**
 - **Volcanic Glass**
- **Sedimentary Rocks**
 - **Limestone**
 - **Sandstone**
 - **Shale**
- **Metamorphic Rocks**
 - **Schist**
 - **Marble**
 - **Slate**

IGNEOUS ROCKS

- Igneous rocks are formed from the molten form of the earth's mantle layer called magma.
- Igneous rocks can form above ground as lava spewing from volcanoes.
- Igneous rocks can also form below the surface. Pockets of magma get stuck in layers of the earth. As they get closer and closer to the surface, the magma slowly cools. Granite is an igneous rock that formed from a slow-cooling pocket of magma.

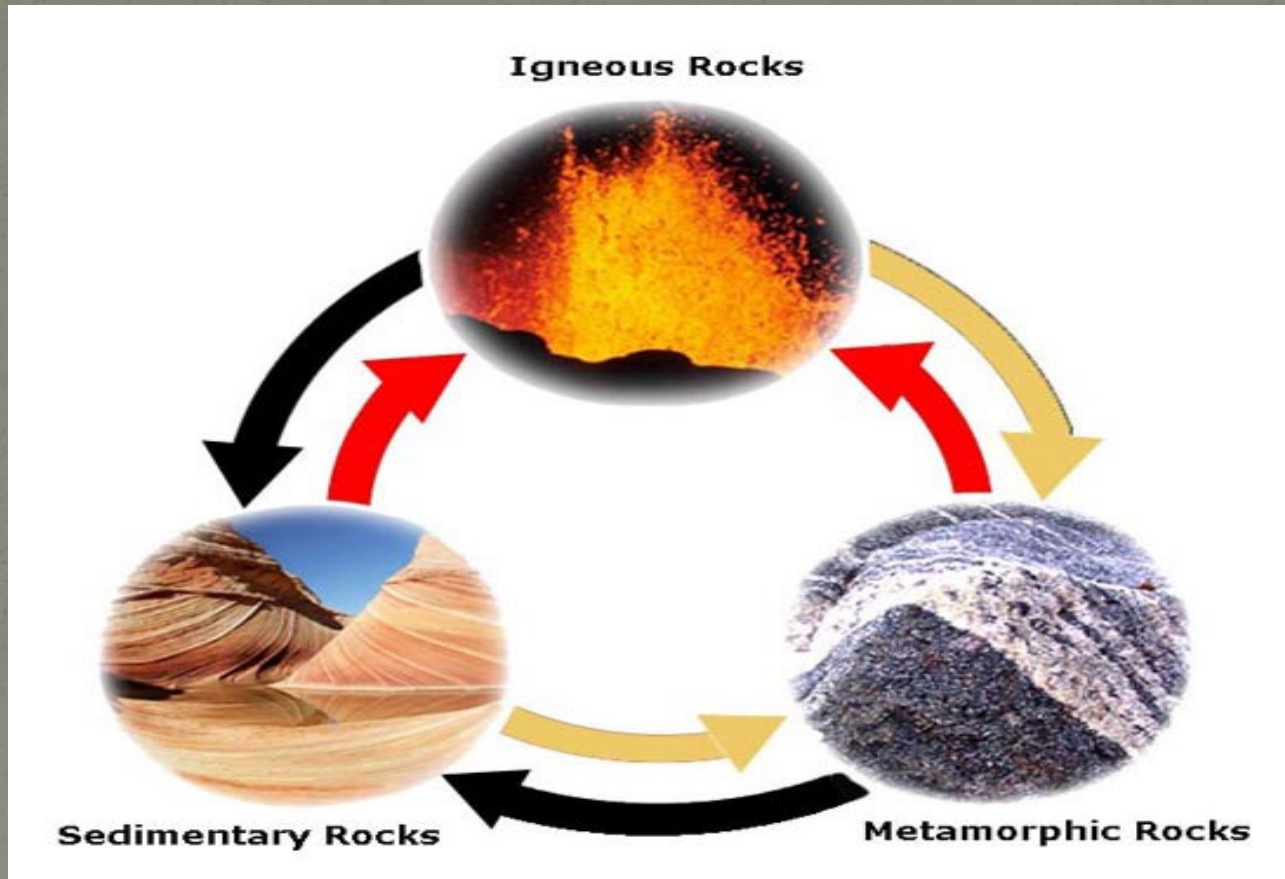
SEDIMENTARY ROCKS

- Sedimentary rocks form from small weathered particles of other rocks or the weathered shells of sea animals.
- Wind and rain beating on the faces of exposed rock wear off particles that are blown or washed to a new location in a process called erosion.
- As the sediments or dead plants and animals pile up, they cement together to form Sedimentary rock.

METAMORPHIC ROCKS

- Metamorphic rocks start out as igneous rocks, sedimentary rocks or other types of metamorphic rocks called parent rocks.
- When the parent rocks undergo intense heat and/or pressure, it undergoes a change called metamorphism changing the characteristics of the rock such as color, sheen, grain size, and hardness.

THE ROCK CYCLE



Rocks continually change form. What started out as sedimentary rock may change to metamorphic and, with time and weathering, change back to sedimentary.

MINERAL IDENTIFICATION

Minerals can be identified by checking for certain mineral properties or characteristics. The various minerals can be classified according to similar characteristics. These characteristics are:

- Color = Helpful but not as reliable as other methods
- Streak = True color of mineral in powdered form
- Luster / Sheen = How the light reflects (metallic, non-metallic, waxy)
- Texture = Crystalline, smooth, rough, angular
- Hardness = Measure of minerals resistance to scratching (Mohs Scale)
- Transparency = Does light pass through it?
(yes=transparent)(no=translucent)
- Other Identifiers: Cleavage, Density, Magnetism, Crystalline Structure, Odor, Taste (don't try this one)

HARDNESS

SCRATCH TEST

- Fingernail (2.5)
- Penny (3.5)
- Paper Clip (4.5)
- Glass (5.5)
- Metal Nail (6.5)
- Diamond can't be scratched (10)

MOHS SCALE

1. Talc
2. Gypsum
3. Calcite
4. Fluorite
5. Apatite
6. Orthoclase Feldspar
7. Quartz
8. Topaz
9. Corundum
10. Diamond

More Rock and Mineral info can
be found at:

http://www.rocksandminerals4u.com/properties_of_minerals.html